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MISSOURI DEPARTMENT OF HEALTH & SENIOR SERVICES
BUREAU OF VITAL STATISTICS
JEFFERSON CITY, MISSOURI 65102-0570
(573) 751-6272

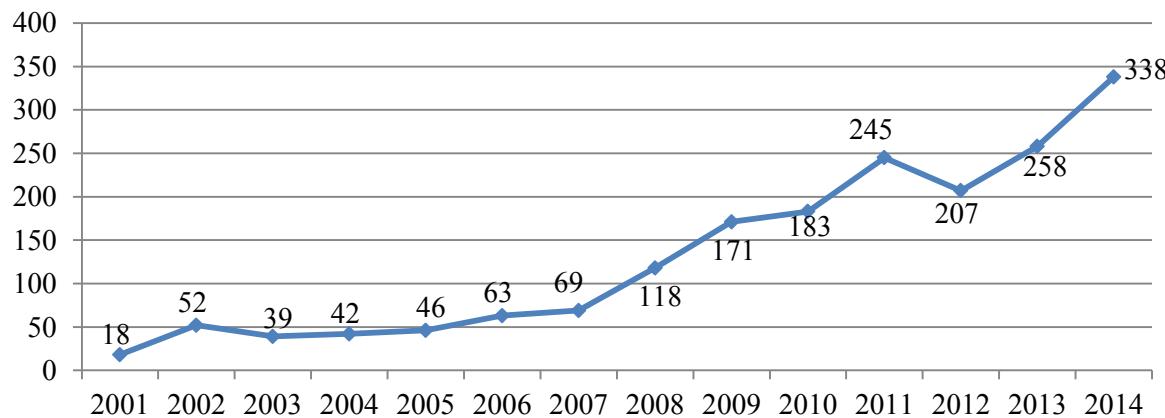
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Accidental Drug Poisoning Deaths With Heroin Involvement in Missouri

The number of heroin-involved accidental drug poisoning deaths which occurred in Missouri increased from 18 in 2001 to 338 in 2014 (Figure 1).¹ There were 1,849 heroin-involved deaths recorded during this period with 1,520 (82.2%) occurring from 2008 through 2014. From 2008 to 2014 the number of heroin-involved deaths nearly tripled, from 118 to 338.

For the period 2001 to 2014 statewide (Table 1), the male rate of heroin-involved deaths was about four times the female rate (3.7 vs. 0.9 per 100,000 population, respectively). The Black non-Hispanic rate of 4.4 per 100,000 population was about double the white rate (2.2). By age, the highest rates were for persons ages 25-34 (5.9).

Figure 1
**Missouri Recorded Deaths due to Accidental Drug Poisoning
With Heroin Involvement, 2001-2014**



Heroin-Involved Accidental Poisoning Deaths Among St. Louis Area Residents

Of the 1,520 heroin-involved deaths recorded in Missouri from 2008 through 2014, 1,449 were among Missouri residents and 1,190 (82.1%) were among residents of the City of St. Louis, St. Louis County, St. Charles County and Jefferson County, all in the St. Louis area.² No other county in the state had 30 or

more heroin-involved deaths among their residents during the 2008 through 2014 period.

The number of heroin-involved deaths among St. Louis County residents increased from 47 in 2008 to 106 in 2014, an increase of 126% (Figure 2). The number of heroin-involved deaths among St. Louis City residents increased from 27 in 2008 to 84 in 2014 (211% increase), among St. Charles County residents an increase from 6 in 2008 to 39 in 2014 (550 % increase), and

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Table 1
Heroin-Involved Accidental Poisoning Deaths
Recorded in Missouri, 2001-2014

	Deaths	Rate*
Total	1849	2.3
Male	1477	3.7
Female	372	0.9
0-17 year olds	11	0.1
18-24 year olds	308	3.8
25-34 year olds	618	5.9
35-44 year olds	409	3.7
45-54 year olds	362	3.1
55-64 year olds	130	1.4
65 years and older	11	0.1
White, non-Hispanic	1414	2.2
Black, non-Hispanic	405	4.4
Other race, non-Hispanic	16	N/A
Hispanic	14	N/A

*Rates are age-adjusted per 100,000 population except ages which are age-specific.

Note: Rates based on fewer than 20 deaths are unstable and should be interpreted with caution.

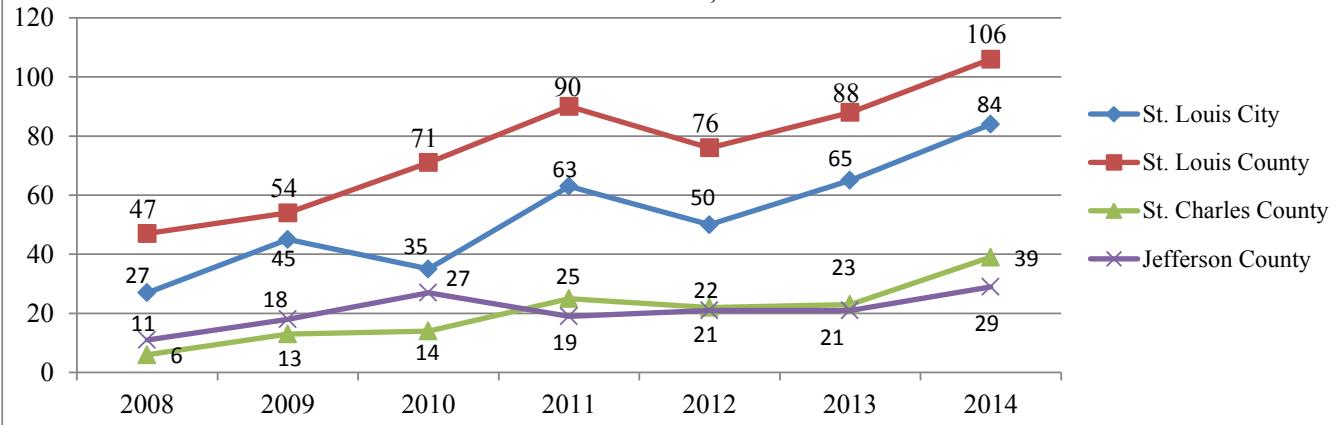
among Jefferson County residents, an increase from 11 in 2008 to 29 in 2014 (163% increase).

Heroin-involved accidental poisoning deaths among St. Louis City residents occurred at a rate of 15.9 per 100,000, the highest rate among St. Louis area residents, followed by Jefferson County (9.9), St. Louis County (8.3) and St. Charles County (5.8) (Table 2). In all areas, deaths among males exceeded female deaths. In contrast to the statewide differences

by race, the rate of deaths among white non-Hispanics exceeded those of black non-Hispanics in all St. Louis area counties except Jefferson County. Rates for Hispanics and other races were not calculated due to low numbers.

In St. Louis City, deaths occurred at a higher rate among ages 35-44 and 45-64 than among younger individuals. However, in the three counties, deaths occurred at higher rates among younger individuals (ages 18-24 and 25-34).

Figure 2
Heroin-Involved Accidental Poisoning Deaths by Year Among St. Louis Area Residents, 2008-2014



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Actions to Prevent Heroin-Involved Deaths

According to the National Institute on Drug Abuse (NIDA), heroin is an opioid drug that is synthesized from morphine, which is a naturally occurring substance extracted from the opium poppy plant.³ Opioids are highly addictive with abuse often starting with the use of prescription pain medications such as Oxycontin and Vicodin and escalating to use of heroin which is cheaper and easier to obtain.⁴ According to the U.S. Centers for Disease Control and Prevention (CDC), heroin use in the United States more than doubled among young adults ages 18-25 in the past decade.⁵

An outcome of the increase in heroin use is the dramatic increase in overdose deaths. According to the CDC, the rate of heroin-related overdoses nearly quadrupled in the United States between 2002 and 2013 with 8,200 people dying in 2013.⁶

As a result of the alarming increase in opioid-related deaths, the U.S. Health and Human Services announced in March 2015 an initiative to reduce opioid-related overdose, death and addiction.⁷ The initiative includes addressing better pain management decisions by health care providers to prevent overprescribing addictive opioids, increasing availability and use of the life-saving opioid antagonist naloxone, and providing effective treatments for opioid addiction.

In an effort to reduce the increasing number of heroin-involved deaths in Missouri, the Missouri House of Representatives passed HB 538 which would allow any licensed pharmacist or pharmacy technician to sell and dispense intranasal naloxone under physician protocol to any person who is at least 18 years old with a valid Missouri identification or driver license. The bill would have authorized any person to possess and administer the opioid antagonist to another individual.⁸ However, the bill failed to pass and did not become law.⁹

Preventing abuse of prescription medications is an important strategy for reducing the potential for future heroin use and overdose death. NIDA reported that almost half of young people who injected heroin who were surveyed in three recent studies had abused prescription opioids before starting to use heroin.¹⁰ In 2015, 17.5 percent of Missouri high school students, including 33.3 percent of 12th grade males, had taken a prescription medication without a doctor's prescription during their lifetime.¹¹

Preventing heroin-involved deaths is an important public health issue in Missouri. For more information on what can be done to reduce heroin addiction, overdose and death, go to <http://www.cdc.gov/vitalsigns/pdf/2015-07-vitalsigns.pdf>.

Table 2
Heroin-Involved Accidental Poisoning Deaths Among Missouri and St. Louis Area Residents, 2008-2014

	Missouri		St. Louis City		St. Louis County		St. Charles County		Jefferson County	
	Deaths	Rate*	Deaths	Rate*	Deaths	Rate*	Deaths	Rate*	Deaths	Rate*
Total	1,449	3.6	370	15.9	532	8.3	142	5.8	146	9.9
Male	1,144	5.7	310	27.1	414	13.5	106	8.7	105	14.2
Female	305	1.5	60	4.9	118	3.6	36	2.9	41	5.6
0-17 year olds	10	0.1	0	0	5	0.3	1	0.2	3	0.8
18-24 year olds	215	5.2	24	9.3	76	12.4	35	15.8	30	23.6
25-34 year olds	502	9.2	86	20.9	192	22.2	51	15.2	61	30.6
35-44 year olds	330	6.3	87	30.7	133	15.6	35	9.9	24	11.4
45-54 year olds	273	4.5	105	34.6	98	9.3	15	3.8	23	9.4
55-64 year olds	110	2.1	64	25	25	2.7	5	1.7	5	2.6
65 years and older	9	0.1	4	1.6	3	0.3	0	0	0	0
White, non-Hispanic	1122	3.2	211	19.8	394	9.4	130	6	143	10.1
Black, non-Hispanic	301	6.2	154	14.2	129	8.2	6	5.2	2	11.4
Other race, non-Hispanic	15	N/A	3	N/A	6	N/A	3	N/A	0	N/A
Hispanic	11	N/A	2	N/A	3	N/A	3	N/A	1	N/A

*Rates are age-adjusted per 100,000 population except ages which are age-specific.

Note: Rates based on fewer than 20 deaths are unstable and should be interpreted with caution.

References

- ¹ Missouri Department of Health and Senior Services, Bureau of Vital Statistics unpublished data. Accidental poisoning by exposure to drug (X40-X44). Heroin-specific multiple cause code (T401). Obtained July 30, 2015.
- ² Ibid.
- ³ National Institute on Drug Abuse (NIDA). DrugFacts: Heroin. Accessed July 31, 2015 from <http://www.drugabuse.gov/publications/drugfacts/heroin>
- ⁴ Ibid.
- ⁵ Centers for Disease Control and Prevention (CDC) Vital Signs. July 2015. Accessed August 3, 2015 from <http://www.cdc.gov/vitalsigns/pdf/2015-07-vitalsigns.pdf>
- ⁶ Ibid.
- ⁷ NIDA. HHH Announces Actions to Attack the Opioid Abuse Crisis. Accessed July 31, 2015 from <http://www.drugabuse.gov/about-nida/noras-blog/2015/03/hhs-announces-actions-to-attack-opioid-abuse-crisis>
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- ⁹ Missouri House of Representatives Bill Actions. Accessed March 2, 2016 from <http://www.house.mo.gov/billactions.aspx?bill=HB538&year=2015&code=R>
- ¹⁰ NIDA DrugFacts: Heroin. Accessed July 31, 2015 from <http://www.drugabuse.gov/publications/drugfacts/heroin>
- ¹¹ Missouri Department of Health and Senior Services. Health Risk Behaviors among Missouri Middle and High School Students. Available at <http://www.health.mo.gov/data/yrbss/data.php>